

# ***User's Guide***

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## **Short-Term Energy Model**

**Office of Energy  
Markets & End Use**

**May 1995**

### **Short Term Energy Model**

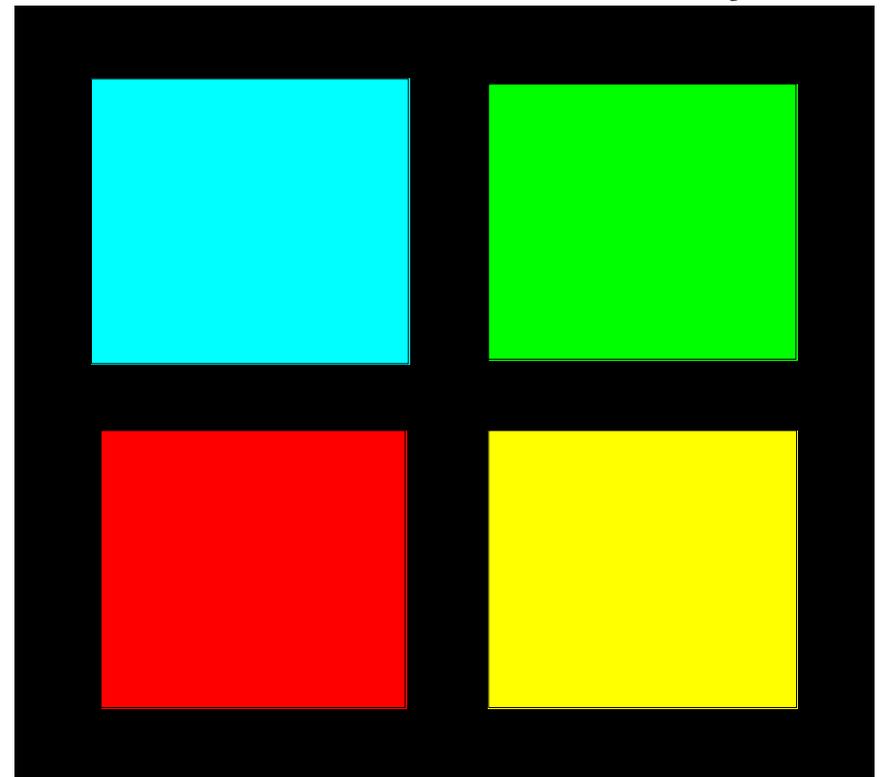
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The personal computer version of the Energy Information Administration's (EIA) *Short Term Energy Outlook*, known simply as the Short-Term Energy Model, is a modeling system used to forecast future values for key energy variables. It replicates in a Windows environment most features of EIA's mainframe-based short-term modeling system, and adds capabilities that allow the user to substitute assumptions to calculate alternative projections.

In addition to providing the capability to examine the impact of alternative assumptions, the Short-Term Energy Model makes available detailed monthly information that previously was only available in summarized, aggregate form.

The Short-Term Energy Model was designed to be easy to operate. No special familiarity with the mathematical underpinnings of the modeling system is required for basic operation, nor need the user be familiar with the technical approach taken by the EIA analysts responsible for the models.

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# Short-Term Energy Model

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# Short-Term Energy Model

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### Overview

The personal computer version of the Energy Information Administration's (EIA) *Short Term Energy Outlook*, known simply as the Short-Term Energy Model, is used to forecast future values for key energy variables. It replicates in a Windows environment most features of EIA's mainframe-based short-term modeling system, and adds capabilities that allow the user to substitute assumptions to calculate alternative projections.

In addition to providing the capability to examine the impact of alternative assumptions, the Short-Term Energy Model makes available detailed monthly information that previously was only available in aggregate form.

The Short-Term Energy Model was designed to be easy to operate. No special familiarity with the mathematical underpinnings of the modeling system is required for basic operation, nor need the user be familiar with the technical approach taken by the EIA analysts responsible for the models.

Users who are new to modeling may use the "executive view" which presents the most important assumptions and forecast variables in a straight forward fashion. More knowledgeable users are given a second possible operating environment, the "detailed view," that both incorporates more variables related to any given module and extends the user's ability to assign new values to most variables, while also making available such additional detail as the add factors used in some equations and the seasonally adjusted values of key variables.

The Short-Term Energy Model includes a context-sensitive help system that allows users to examine the equations used in each of the sectoral models and review the explanation of how each model operates.

The system adheres to the usual operating conventions of Windows programs by offering such features as pull-down menus, context sensitive help, and an easy to understand procedure for invoking the full range of capabilities. In addition, the system takes advantage of the graphical environment by making it simple to view time series plots of any variable, together with such statistical tools as the variable's trend line, standard deviation, and so forth.

The simulations that run on The Short-Term Energy Model use the same models as EIA uses on its mainframe system and the models use the same data. The mainframe version, known as the Short Term Integrated Forecasting System, solves the models using a proprietary econometrics package, while the PC system uses a solution module specially created for this purpose.

### Getting Started

The Short-Term Energy Model runs on the Windows operating system, or a compatible alternative capable of running Windows 3.x programs, such as OS/2. For best results, a 486DX33 (or faster) machine with at least 8 megabytes of Random Access Memory is recommended. The following steps install the system and start a session:

#### Installation

- Use the "File | Run" menu choice from the main Windows Program Manager menu to run SETUP.EXE from the drive holding the Short-Term Energy Model program disk (e.g., A:SETUP) or from an assigned subdirectory on your hard drive if you have downloaded the model electronically.

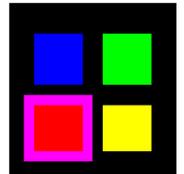
- Like many other Windows applications, the Short Term Model requires that the DOS program Share.Exe be loaded when the system is started.<sup>1</sup>

All files (on the installation disks or from unzipped download files obtained electronically) are in compressed format, meaning that just **copying the files to a hard drive will not work** . All files must be uncompressed using the installation.

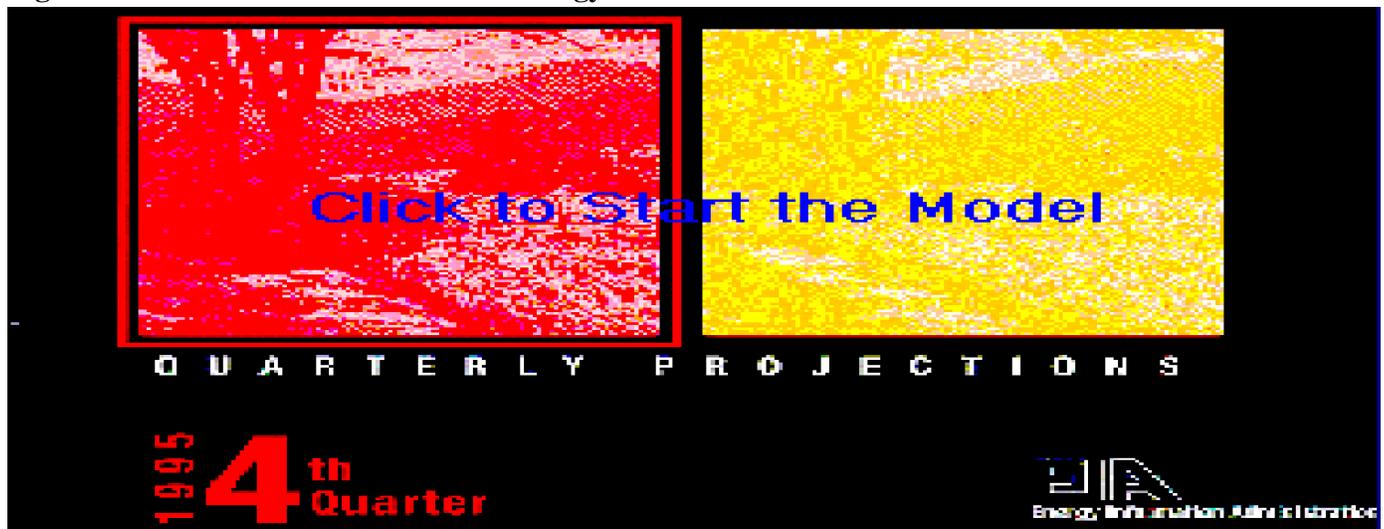
## Running The Short-Term Energy Model

- Start the system by clicking on the icon (Figure 1) that was added to the Windows Program Manager screen during installation.<sup>2</sup>
- Click where indicated on the initial screen to start the program. The spot for starting the program is in the lower portion of the four quarter display (Figure 2). Clicking in that panel so brings up the modeling system, which consists of a default set of analysis screens, corresponding to key segments of the model. These display selected energy price and quantity information. Normally, upon initial startup of the system, the user sees first the gasoline analysis screen, displayed in “Executive View” mode. Operating the system in Executive View mode is explained next.

**Figure 1. Icon**



**Figure 2. Start Panel for Short-Term Energy Model**



<sup>1</sup> Windows for Workgroups uses an alternative to the DOS SHARE.EXE program called Vshare.386. For most systems, adding a line with SHARE /L:500 in the Autoexec.Bat file will suffice.

<sup>2</sup> If no icon is available, use the Windows File | Run choice to start the Short Term Energy Model from the main Windows menu. Select the main execution file (e.g. STM95Q4.EXE for the fourth quarter 1995 version) to be run from the directory name selected by the user during installation. To restore the icon, select File | New from the same menu, select Program Item, fill in a description, working directory (as selected during installation), and a new command line (e.g. STM95Q4.EXE), and then select the program icon by clicking on the Change Icon button. This will cause the icon supplied with the system to be used.

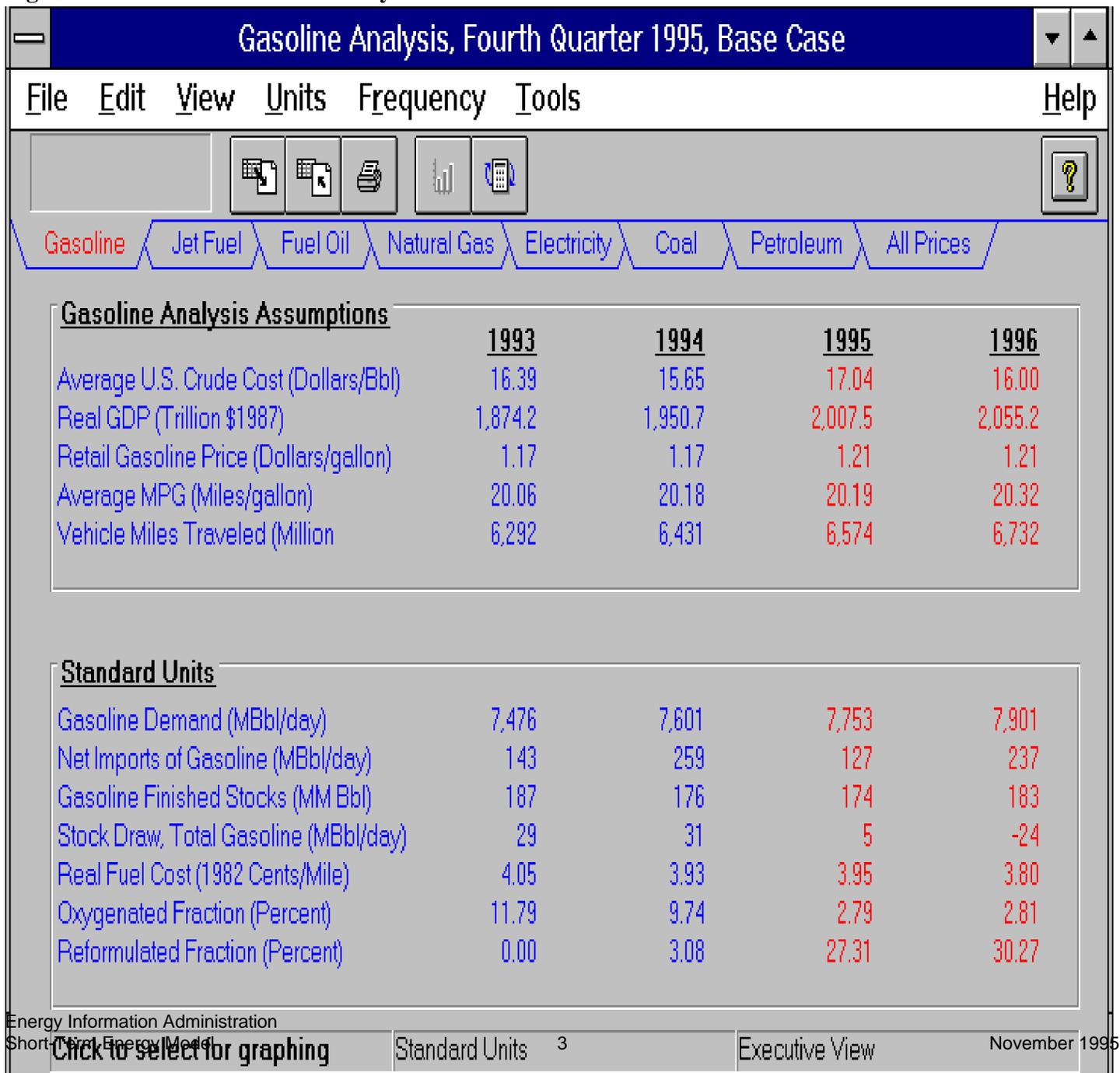
## Executive View Operating Procedure

Once in the Executive View mode, you can: select any of the available analysis screens, which are labeled on file tabs at the top of the display; examine or save in tabular or graphical form the base case forecast that comes with the system; make the necessary changes to assumptions that will define an alternative case of your own design and re-solve the model to get a user-generated scenario; and save your alternative scenario for future reference.

The Executive View is the initial setting when the system is first used. It is intended as a simplified introduction to the Short-Term Energy Model's capabilities for the non-specialist. The other possible view is the "Detailed View" which offers access to both a greater number of variables and to the full array of program features. Press the F3 key to switch to the detailed view, and the F2 key to return to the executive view.

Once the executive view of an analysis screen has loaded, several decisions must be made before specifying an alternative

**Figure 3. Executive View of an Analysis Screen**



case:

- Decide how data should be displayed.
- Set the frequency of the time series display.

These values may be changed using the Units or Frequency menu choices.

Possible choices from the “Units “ menu include:

- **Standard Units** This refers to the typical units in which variables are displayed in EIA publications (e.g. thousand barrels per day for petroleum flows, billion kilowatthours for electricity, etc.).
- **Year Over Year Change** Difference in standard units for the variable between one year and the previous year.
- **Year Over Year Percent Change** How much a variable changed in percent from the same period in the previous year.
- **Deviation from Base Case** The difference in standard units from the base case value for the period in question.
- **Percent Deviation from Base Case** How much the calculated value varies in percentage terms from the same period base case value.

Possible choices for frequency of display: **Monthly, Quarterly, and Annual**

## Changing Assumptions

Use the mouse to make changes to any assumptions used in an analysis module. By clicking on a single cell , an “Adjust Data Value” box appears with up/down arrows for making changes. (It is also possible to place the cursor over the value displayed in the box and type a new value directly). Note that only variables in the “Assumptions” area can be changed, and only the value of assumptions in the forecast period (i.e., historical values cannot be changed). Strictly speaking, not all of the variables in the “Assumptions” area are fixed, but may be endogenous variables with special features that allow users to set targets for scenarios (e.g. retail gasoline price). A more detailed discussion of these special features is provided in the discussion of the “Detailed View” below. Entering changes for these variables is effected in the same manner as intrinsically fixed variables, but, due to model feedback, initial user settings may not be equal to the final calculations displayed after resimulation.



### Returning to the Original Values

The base case data that was loaded on startup may be reloaded by selecting the File | Restore Base Case Scenario choice or by clicking on the “Restore Base Case” button. This option should be used with care since it will erase any other changes made by the user.



### Saving and Restoring the Scenario

At any time before or after a run, the values of all variables may be saved. This will cause a file to be written that holds the values of all variables for each month of the historical period and forecast term. The file will be in a standard spreadsheet format (i.e. a WK1 file) that most spreadsheet programs will be able to read. The saved file can also be reloaded so that previous work can be used for further user changes, graphing, and so forth. Both options may be accessed by the File | Save Scenario and File | Load Scenario menu choices.



## Recalculating the Models

Once all changes have been made in a module, the simulation must be rerun by pressing the calc button (this can also be done from the menu choice or by pressing the F9 key). This causes all changed variables to be sent to the solution module where the new values are substituted into the models and the models are solved. The results are then returned to the screen. During recalculation, all models are solved, not just those for which new user inputs were detected.

## Reporting Simulation Results

The Short-Term Energy Model offers several different ways of viewing run results:

### *Printed Reports*

The most basic way to obtain printed output is to print the displayed results from the executive view. This choice is available from the File | Print This Table menu item in the executive view. All available data from a module is printed, meaning that several pages of output may be required, especially if you are printing the monthly values.

### *Copying Data to a Clipboard*

Data or graphics screens displayed in the program can easily be copied to a windows clipboard for importing into word processors and other programs. Simply click on the "Edit" menu and choose "Copy to Clipboard." Whatever is *currently on the screen* will copied for use in other Windows applications. Thus, only a portion of the data for a given module can be sent to the clipboard at a time.

### *Storing Results as Spreadsheets*

The main variables can be examined directly by selecting the option of saving data to a spreadsheet after a run has solved. The resulting spreadsheet, written in a WK1 file format, may then be analyzed in any of the standard spreadsheet software programs. One method of examining the differences between a user-defined runs is to use worksheet differencing options provided by the spreadsheet system being used.



## Graphing Results

By clicking on one or more variable names and then selecting the graphics button, a plot of the related time series over the available historical period and forecast term can be shown on the screen and printed. Note that the graphics display will be for whatever view of the data then applies. For instance, if the user has selected Percent Deviation from Base Case as the units for display, the series plotted will also be percent changes.

Possible types of graphic displays include 2 and 3 dimensional bar graphs, line plots, and various statistical analyses. To print the graph directly, choose File | Print. To send the graph to the clipboard for use in other applications, choose the clipboard option in the File menu.



## Context-Sensitive Help

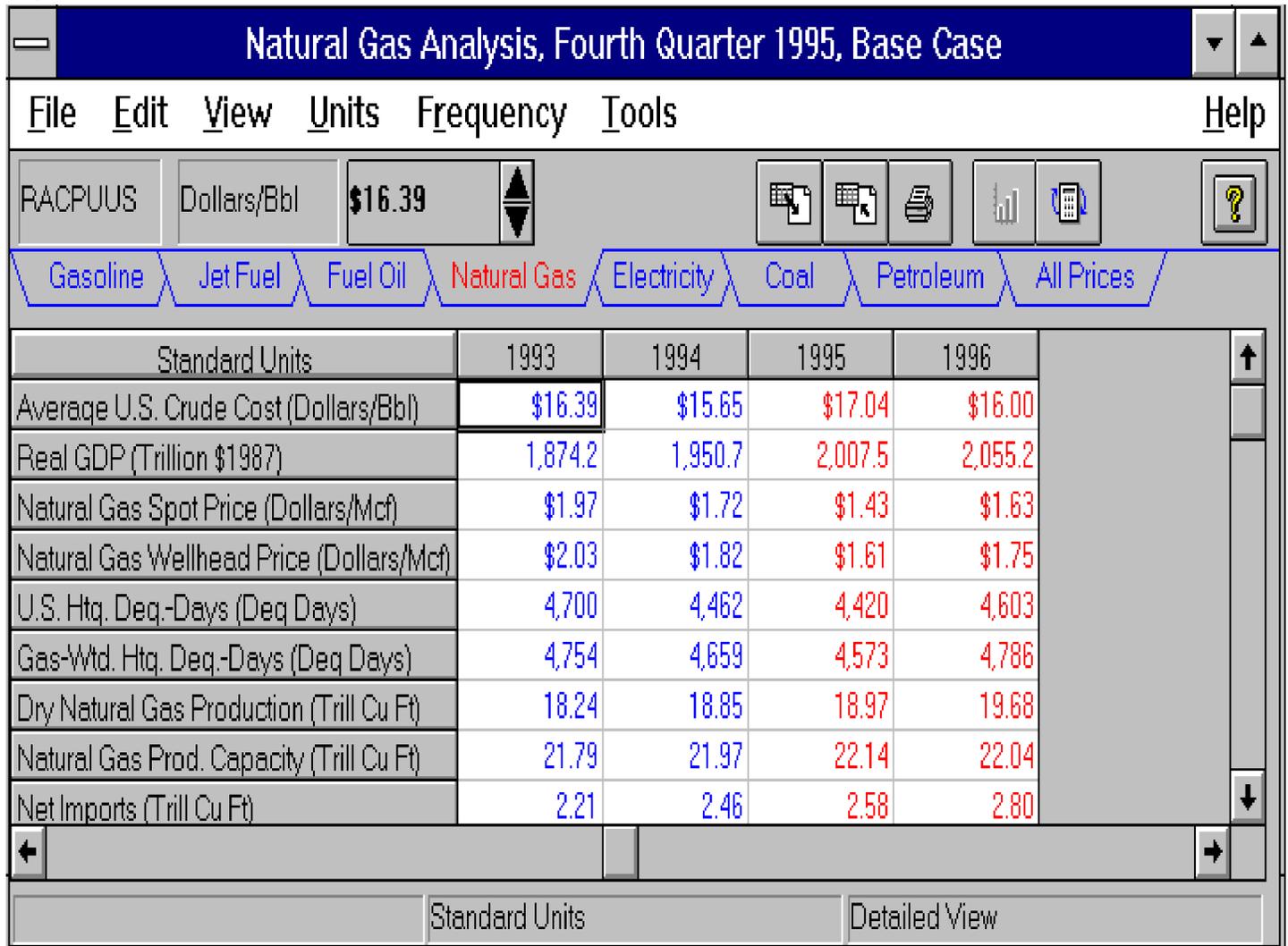
The Short-Term Energy Model's on-line help file can be called by pressing F1 (or clicking on the "?" button) at any time during program operation. A brief description of what each tool button does pops up in a yellow function box as the cursor arrow is dragged across the button. Menu choice help is displayed by pointing to the choice and pressing F1. The Help File contains: numbers to call for help with specific modeling topics; descriptions of the models; lists of variables; definitions of key terms; a listing of any new features added after the documentation was printed; and screen maps that show what specific features do.

## Detailed View Operating Procedure

Features described above for the executive view also apply to the detailed view, but with some additional capabilities added. Those features that are substantially the same in both views, such as restoring the base case, saving scenarios, recalculating the models, and using the help system, are not covered in this section. Instead, the focus is on the additional capabilities added by the detailed view (Figure 4).

The detailed view allows for a greater number of variables to be displayed and manipulated on the screen than in the executive view. One way of changing the values of a variable in the detailed view is done by clicking on a cell or dragging across multiple cells in the row of the matrix corresponding to the variable of interest, and then modifying the value by pressing either

**Figure 4. Detailed View of an Analysis Screen**



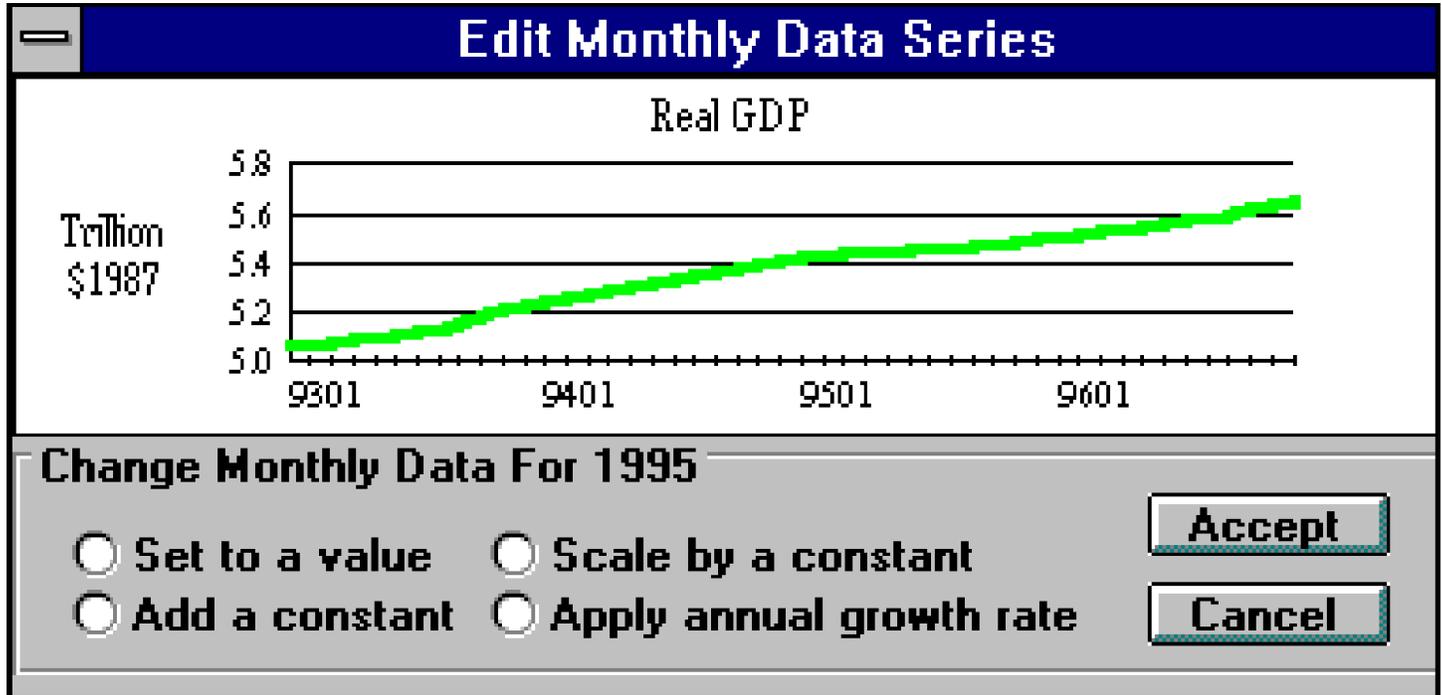
the up or down arrow at the top of the screen. If any of the selected cells include historical (blue) values, no change will be allowed. Select only forecast (red) cells for making changes.

Another way of making changes to selected cells in the Detailed View mode is to utilize the edit button (drawing hand icon) next to the value display box (see Figure 4). This pops up the Data Edit Window shown in Figure 5.

The data change buttons in the editing window allow for quicker and in some instances more sophisticated input changes than are feasible using the up/down arrows. The Data Edit Window operates on whatever cell or set of cells is selected for a given variable. Once invoked, the data editor offers four methods of editing ranges of monthly data. The choices are (1) to reset all

values in the marked range to a particular value; (2) to add a constant to each monthly value in the range; (3) to multiply each monthly value by the same factor; or (4) to apply a growth annualized growth rate. (The growth rate option refers to applying a growth path to the variable that yields approximately the user-specified rate as a rate of divergence from the base case per year.) Once a selection is made, the change is displayed as a blue line. To make the change take effect in the simulation, press the Accept button and continue.

**Figure 5. The Data Edit Window**



The detailed view is designed to permit a greater range of variables to be changed, but the program still prevents the user from changing historical data or simple calculated values. The presence or absence of these restraints is indicated by the grey or white color of the value adjustment box at the top of the matrix. If it is white, the value may be changed because the variable meets the tests described below; if gray, it may not.

## Types of Variables

It is important to understand the distinction between types of variables used by in the system. Two types of variables are included as assumptions that the user may change: (a) pure exogenous variables, whose values are not calculated but are supplied independently in advance for use in arriving at the value of calculated variables; and (b) a special type of endogenous variable whose values are calculated by the model but which include an "add factor" term that can be set to ensure that the final calculated value of the endogenous variable approximates a predetermined target value assigned by the user. For this latter type of endogenous variable, the Short-Term Energy Model follows a goal seeking procedure that effectively asks what the calculated value of the add factor would have to be if the value of the model variable of interest were equal to the target value set by the user. This technique enhances the user's ability to test alternative assumptions about key model variables without disturbing endogenous relationships in the model.

In addition to the special type of endogenous variable with an add factor, the Short-Term Energy Model includes many purely endogenous variables without add factors. These values may not be changed by the user and thus only provide additional information on the impact of changing assumptions about the variables.

Finally, special considerations apply to macroeconomic variables. The Short-Term Energy Model does not attempt to model the general economy but works instead on a series of implied relationships between the principal macroeconomic variables,

keyed to a factor measuring growth in GDP. In view of the interrelationships between variables in this category, a change made to one macro variable will cause other macro variables related to that variable to be changed systematically. These interconnections may take some getting used to. For instance, in setting up a user-specified simulation, if in one module a change is made to GDP and in another module a change is made to industrial production, the second action may have the effect of altering the first GDP value. However, this situation is deemed necessary to avoid the possibility of extreme inconsistency between the particular macro drivers in the models.

The detailed view mixes together in the same matrix all types of variable, but permits the user to identify which endogenous variables have add factors through a menu selection for that purpose (accessed from the “View | Add Factors” menu choice). In the detailed view it is also possible to display certain model variables in seasonally adjusted form, if that form of the variable is key to the underlying modeling being done (accessed from the “View | Seasonal Adjustments” menu choice).

## Changing Variable Attributes and Adding New Variables

The user may control how variables are presented from the detailed view in two ways. The first method is an on-screen procedure that allows for changing certain attributes of a particular variable or adding variables to the display screen one at a time. The second method utilizes a more comprehensive screen design utility built into the program.

### *On-Screen Attribute and Display Edits*

The on-screen method for changing the screen display involves selecting any cell for a particular variable and single clicking the right mouse button. This will cause a display of the current settings for the variable being pointed to (Figure 6). Any of the settings may be altered by entering a new value in the top data field *and pressing enter* (the changes won't take effect otherwise). For a new variable, click on the bottom row of the detailed screen. The new variable must be one that already exists in the Short-Term Energy Model, but is not currently displayed.

It is possible to make permanent changes to the variable definition database, but caution should be exercised when doing so as a nonsensical definition could produce incorrect results.

Each variable is defined by the following properties:

**Variable Naming Code** : The name of the variable in the systems data base of variables. Consult Appendix B for further details.

**Label**: The name of the variable or caption used to describe the variable.

**Units**: The caption for the units of the variable.

**Digits**: The number of places to the right of the decimal point to display.

**Scale X**: A factor by which the variable value in the data base is multiplied before the value is displayed. For instance, in the actual model the jet fuel price is defined in cents per gallon. The default for the display, however, is dollars per gallon. Thus the default scale factor is .01 to convert cents to dollars.

Figure 6. Properties of Variables

Edit Variable Properties		
File Edit Search		
STM Variable Code.		
CODIPUS		
Property	Value	
Variable Name	CODIPUS	
Label	Refinery Runs (Distillation)	
Units	MBbl/day	
Digits	0	
Scale X	1000	
Increment	100	Use
Addfactor	CORIPAD	
Aggregation Type	General, use daily average	Cancel
Weight	[none]	

**Increment:** The amount by which the variable is adjusted in display units when the user clicks on the up arrow or down arrow in the button bar. If the up arrow is clicked, the increment is added to the variable value. If the down arrow is clicked, the increment is subtracted from the variable value. Changes are always in 0.1% increments for percentage changes.

**Add factor:** The name of the add factor which is associated with the variable being edited. When the add factor cell is double clicked, a list of all variables in the current module is added to the drop list. The user must select the add factor associated with this variable from this list. If the name of the associated add factor does not appear, the user must first add the add factor to the module by double clicking on the new variable row and then repeat the process.

**Aggregation:** Defines the methodology by which the variable is aggregated from monthly data to quarterly or annual data. See Appendix A for details.

**Weight:** The name of the variable used to weight the variable being edited or added when aggregating the variable. A variable should only be specified here if the aggregation type for the variable being edited or added is "Price" or "Draw." The "\*" and "?" characters can be used to perform string searches of variable names.

Caution should be used when changing the definitions of existing variables. It is possible to enter values that produce nonsensical definitions.

### *Customize Screens Utility*

A more comprehensive tool for arranging screen displays and for creating custom screens from scratch is available in the detailed view mode by clicking on the "File" menu and choosing "Configuration" and then choosing "Customize Screens." This opens the utility, which is displayed in Figure 7.

If it is not already set, be sure that the "Enable screen design" box at the top of the screen has an "X" in it by left clicking the box.

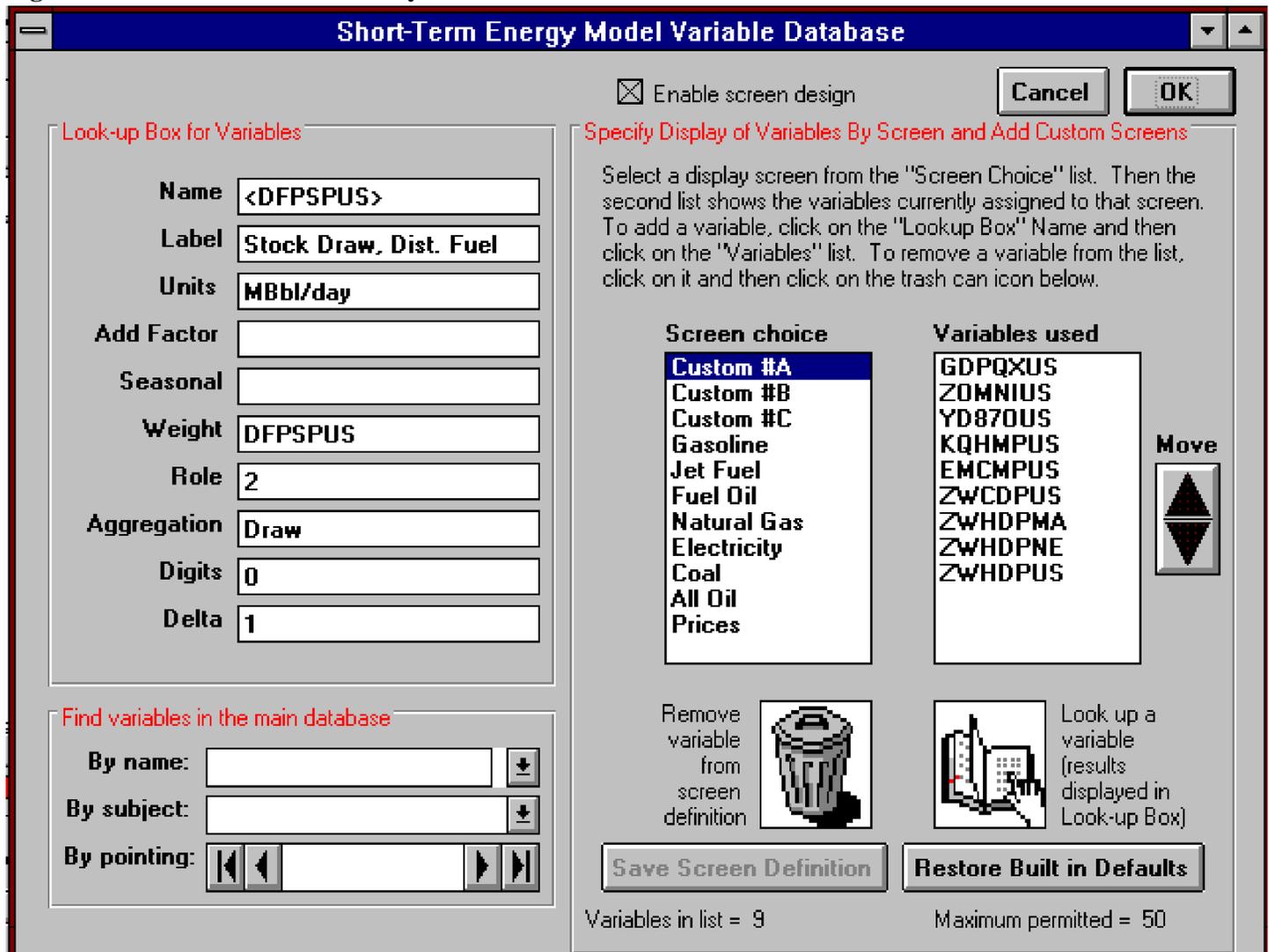
By highlighting one of the items in the "Screen choice" panel, the default variables in one of three custom screens or in one of the standard screens are displayed in the "Variables used" panel. To add a variable to a screen, first scroll through the choices in the "Find variables in the main database" panel (either by name or by subject) and click on a choice. This will place the variable attributes in the "Look-up Box for Variables" panel. At this point it is probably best not to try to change detailed attributes such as "Weight" or "Aggregation." These may be fine tuned in on-screen mode with dialog boxes. Next, click on the variable name in that panel and drag and drop your selection to the "Variables used" panel. To delete a variable, drag and drop the variable name from the "Variables used" panel to the trash bin. To rearrange the order of variables as displayed on the screen chosen in the "Screen choice" panel, click on the variable and then click appropriately on the up/down move arrows provided to the left of the "Variables used" panel. When you have finished designing or redesigning a screen, click on the "Save Screen Definition" button and exit the utility. The redesigned screens will now be available for use.

### *Variable References*

The main Short-Term Energy Model variables are presented in the Appendix. There are several other ways to either locate variables or understand how they are used. The help file includes the equations in which variables are referenced. The variable in question should be found in the model that corresponds to the module that was selected for analysis. In addition, the detailed view gives the variable name for any line appearing on the screen. By double clicking on a line, it is possible to call up the variable change dialog box. Try entering a portion of a similar variable name as a wildcard. For example, MG\* will locate all variables starting with MG in the data base. If necessary, the new variable can be added to the display (in the detailed view, last line).

For more information on variables and the models that use them, please consult the most recent version of the documentation report *Short-Term Integrated Forecasting System Model Documentation Report*, DOE/EIA-M041. A copy of this report may be obtained by contacting Dave Costello at (202) 586-1468, or by FAX at (202) 586-9753.

Figure 7. Customize Screens Utility



## Appendix A. Additional System Information

**Add Factors.** Either the executive or detailed view will make it appear that the user is directly supplying new values for both truly exogenous variables and endogenous variables with add factors. For the latter variable type, in reality the user is changing the add factor rather than the final value of the variable. This procedure is done to preserve the integrity of the endogenous relationships in the model. Like the executive view, the detailed view does not permit the user to assign new values to truly endogenous variables without add factors.

While the vast majority of add factors are simply autonomous additive terms in a linear equation, there are exceptions to this general rule. Some equations use add factors that are linear in logarithmic values. The programs that run the Short-Term Energy Model include routines for sorting out which type of add factor is involved. In most instances, the user need not know how the underlying equation will treat the add factor. The exception comes when the user assigns new attributes to a variable (in particular through the on-screen edits), such as new scaling factors or change increments. In these instances, the on-line help facility should be consulted to look up the equations being used for calculating that variable in order to be sure that the new properties are consistent with the equations.

**Aggregation.** When the aggregation row is clicked, the user can then select the aggregation type from the drop down box. The possible aggregation types are:

Monthly, sum to period: The data base reports the variable value in units per month. When aggregating to quarterly or annual data, the monthly data is summed. For instance, heating degree days is reported by the Short-Term Energy Model in heating degree days per month. When aggregating to quarterly data, the three months representing the quarter are summed and the figure displayed is heating degree days per quarter.

Daily, sum to period: The variables data base reports the variable value in units per day. When aggregating to monthly data, the figure is multiplied by the number of days in the month. Similarly, the monthly figures are summed when quarterly data is displayed.

General, use daily average: The Short-Term Energy Model reports the variable value in units per day. When aggregating to monthly data, the variable reported by the Short-Term Energy Model is displayed. To display quarterly or annual data, the average daily value over the time period in question is displayed. For example, jet fuel consumption is reported in 1000 barrels per day. When monthly data is showing, the data base value is displayed. When quarterly data is showing, the average value during the three months of that period is displayed, using the number of days in each month as a weight. Thus, the units of the displayed value will still be 1000 barrels per day.

Price, weight with variable: This aggregation type is used for price variables such as the price of jet fuel. It is similar to the general average, except that the variable is weighted by the quantity of fuel consumed during the period in question. If this aggregation type is selected, the variable to weight the price by must be specified in the "Weight" field.

Stock, end month: This aggregation type should only be used for stock variables. If quarterly data is displayed, the value displayed will be the value of the variable in the last month of that quarterly period. Similarly, if annual data is displayed, the value displayed will be the value of the variable in the month of December.

Draw, use average: This aggregation type should only be used for draw variable. Draw variables calculate the amount of fuel withdrawn from stocks per day. If the variable is a draw variable then the stock variable which it measures the changes in must be specified in the "weight" field. The variable displayed in the aggregation will be an average weighted by the number of days in a month.

## **Variable Name Codes**

If the variable name is known exactly, it can be entered and recorded by hitting return. If the name is not known exactly, the "?" and "\*" characters can be used to perform SQL searches. "?" matches any single character. For instance, entering ??TCUUS returns the variable names DSTCUUS, JKTCUUS, PRTCUS, and RFTCUUS. "\*" matches all characters to the end of the label. Therefore, RACPU\* returns RACPUUS, RACPUUSA, and RACPUUSS. Press the "Variables" button of the help screen for a listing of variables. Users familiar with spreadsheets may also use the File | Save Scenario menu selection to produce a standard spreadsheet containing a list of variables, with explanations of what each stands for.

## Appendix B. Guide to Variables Used by the Short-Term Energy Model

A similar listing is also available online by calling Help and clicking on Variable Guide.

### Units Key

BCF = Billion cubic feet. BIL\$ = Billion Dollars. CDD = Cooling degree-days. CPG = Cents per gallon . DAYS = Number of days. DMMB = Dollars per million Btu's. FRAC = Fraction. HTMB = Hundred ton-miles per barrel. MBtuCF = Thousands of Btu's per cubic foot. MM = Millions MMBD = Million barrels per day. MMBtuT = Millions of Btu's per short ton. MMTD = Million tons per day. MTMD = Million ton miles per day. TNHR = Short tons per hour.	BCFD = Billion cubic feet per day. BKWD = Billion kilowatthours per day. CKWH = Cents per kilowatthour. CPPM = Cents per passenger mile. DMCF = Dollars per million cubic feet. DPB = Dollars per barrel. HDD = Heating degree-days. INDX = Index. MBtuK = Thousands of Btu's per kilowatt hour. MMB = Million barrels. MMBtuB = Millions of Btu's per barrel. MMT = Million tons. MPG = Miles per gallon. PCT = Percent.
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NAME	UNITS	DEFINITION
AARYFUS	CPPM	Average realized airline ticket price
AARYFUSA	CPPM	AARYFUS seasonally adjusted
ABRIPUS	MMBD	Refinery inputs, aviation gasoline blending components
ABTCPUS	MMBD	Reclassified aviation gasoline blending components
AFUEUUS	DMMB	Weighted price fossil fuel to electric utilities
BALIT	BCFD	Natural gas balancing item
CCNIPUS	MMTD	Net imports of coal coke
CCPRPUS	MMTD	Production of oven and beehive coke
CCSDPUS	MMT	Coal coke producer closing stocks
CCTCPUS	MMTD	Demand for coal coke
CICPIUS	INDX	Consumer price index, Urban
CLEOPUS	BKWD	Electricity generation by coal
CLEUDUS	DMMB	Cost of coal to electric utilities
CLEUDUSA	DMMB	CLEUDUS seasonally adjusted
CLEUKUS	MMBtu/	Heat content of coal at electric utilities.
CLEUPUS	MMTD	Demand for coal to produce electricity
CLHCPUS	MMTD	Demand for coal: residential and commercial
CLKCPUS	MMTD	Monthly U.S. coal shipments to coke ovens
CLKCPUSX	MMTD	Temporary variable for CLKCPUS
CLPRPUS	MMTD	Total coal production
CLPRPUSX	MMTD	Temporary variable for CLPRPUS
CLSEPUS	MMT	Closing stocks of coal at electric utilities
CLSEPUSX	MMT	Temporary variable for CLSEPUS
CLSESTAR	MMT	Target closing stocks for CLEUPUS
CLSKPUS	MMT	Closing stocks of coal at coke plants
CLSKPUSX	MMT	Temporary variable for CLSKPUS
CLSKSTAR	MMT	Target closing stocks for CLSKPUS
CLSOPUS	MMT	Closing stocks of coal at retail and general industry
CLSOPUSX	MMT	Temporary variable for CLSOPUS
CLSOSTAR	MMT	Target closing stocks for CLYCPUS
CLSTBAL	MMTD	Balancing item for coal supply
CLSTPUS	MMT	Total secondary coal closing stocks
CLSTPUSX	MMT	Temporary variable for CLSTPUS
CLTCPUS	MMTD	Total coal demand
CLXCPUS	MMTD	Coal demand by synfuels and other industrial users
CLYCPUS	MMTD	Demand for coal by other industrial users
CLZCPUS	MMTD	Demand for coal by retail and general industry
CODIPUS	MMBD	Gross inputs to crude distillation units
CODQPUSX	MMBD	Maximum for CODQPUS
COEXPUS	MMBD	Exports of crude oil
COIMPUS	MMBD	Gross imports of crude oil (excluding SPR)
COLOPUS	MMBD	Crude oil losses
CONIPUS	MMBD	Net imports of crude oil (including SPR)
CONXPUS	MMBD	Net imports of crude oil (excluding SPR)
COPRPUS	MMBD	Total U.S. crude oil production
COQMPUS	MMBD	Strategic petroleum reserve imports

CORIPUS	MMBD	Refinery inputs of crude oil
CORIPUSA	MMBD	CORIPUS seasonally adjusted
COSQPUS	MMB	Strategic petroleum reserve level_Crude Oil in SPR
COSQPUS1	MMB	1-month lag of COSQPUS
COTCPUS	MMBD	Demand for unprocessed crude oil
COUNPUS	MMBD	Unaccounted crude oil
CPM	CPG	Real price per mile travelled for motor gasoline
CPMSA	CPG	CPM seasonally adjusted
CPTCPUS	MMBD	Demand for crude oil and pentanes plus
CURIPUS	MMBD	Refinery inputs of crude and unfinished oils
D2RCPUS	MMBD	Demand for no. 2 heating oil, residential
D2RCUUS	CPG	No. 2 heating oil, residential price
D2RCUUSA	CPG	D2RCUUS seasonally adjusted
D2WHPUS	MMBD	Demand for no. 2 heating oil (wholesale)
D2WHUUS	CPG	No.2 heating oil wholesale price
D2WHUUSA	CPG	D2WHUUS seasonally adjusted
DFACPUS	MMBD	Demand for diesel fuel
DFEPPUS	MMBD	Shipments of distillate fuel oil to electric utilities
DFEXPUS	MMBD	Exports of distillate fuel oil
DFHCPUS	MMBD	Demand for distillate fuel oil residential and commerci
DFICPUS	MMBD	Demand for industrial distillate fuel oil
DFIMPUS	MMBD	Gross imports of distillate fuel oil
DFNIPUS	MMBD	Net imports of distillate fuel oil
DFNUPUS	MMBD	Non-utility demand for distillate fuel: (DFTCPUS - DFEPPUS)
DFPSPUSA	MMB	DFPSPUS seasonally adjusted
DFROPUS	MMBD	Refinery output of distillate fuel oil
DFROPUSA	MMBD	DFROPUS seasonally adjusted
DFTCPUS	MMBD	Demand for distillate fuel oil
DFTCPUSA	MMBD	DFTCPUS seasonally adjusted
DKEOPUS	BKWD	Electricity generation by distillate fuel oil
DKEUPUS	MMBD	Demand for distillate fuel at electric utilities
DSRTUUS	CPG	Retail price of diesel fuel oil
DSRTUUSA	CPG	DSRTUUS seasonally adjusted
DSTCPUS	MMBD	Demand for diesel fuel oil
DSTCUUS	CPG	No.2 diesel fuel prices
DSTCUUSA	CPG	DSTCUUS seasonally adjusted
EFF	HTMB	Average aircraft efficiency RMZTPUS/JFTCPUS
EFFSA	HTMB	EFF seasonally adjusted
ELEOPUS	BKWD	Total utility electricity generation
EMCMPUS	MM	Commercial employment
EMNFPUS	MM	Non-farm employment
EMPIPUS	MM	Manufacturing employment
EMPMPUS	MM	Mining employment
ESCPUS	BKWD	Commercial electricity demand
ESCPUSB	BKWD	ESCPUS seasonally adjusted 2-month moving average
ESCPUSQ	FRAC	Ratio: commercial electricity demand to commercial employment
ESICPUS	BKWD	Industrial electricity demand
ESICPUSB	BKWD	ESICPUSA 2-month moving average
ESOTPUS	BKWD	Other electricity demand
ESOTPUSB	BKWD	ESOTPUSA 2-month moving average
ESOTPUSQ	FRAC	Ratio: ESOTPUSB/GNPQXUS
ESRCPUS	BKWD	Residential electricity demand
ESRCPUSB	BKWD	ESRCPUSA 2-month moving average
ESRCPUSQ	FRAC	Residential electricity demand to housing closing stock
ESRCUUS	CKWH	Residential electricity price
ESRCUUSA	CKWH	ESRCUUS seasonally adjusted
ESTCPUS	BKWD	Total electricity demand
ESTCPUSB	BKWD	ESTCPUSA 2-month moving avg.
ESTXPUS	BKWD	Total Demand Incl. Nonutility Generation for Own Use
ETOTSUP	BKWD	Total electricity supply (utility + nonutility + import
ETXSUP	BKWD	Total Supply - Including Nonutility (NTEOPUS)
FEERIUS	INDX	Real exchange rate
FETCPUS	MMBD	Demand for petrochemical feedstocks
GDPDIUS	INDX	GDP implicit price deflator
GDPQXUS	BIL\$	Gross Domestic Product, billion 1987 dollars
GEEOPUS	BKWD	Electricity generation by geothermal power
GNPDIUS	INDX	GNP price deflator (PGNP)
GNPQXUS	BIL\$	Real Gross National Product, billion 1987 dollars
HDDX85	HDD	HDD's after 8501, 0 otherwise
I87RXUS	BIL\$	Private Domestic Investment, billion 1987 dollars
JFEXPUS	MMBD	Exports of jet fuel
JFIMPUS	MMBD	Gross imports of jet fuel
JFNIPUS	MMBD	Net imports of jet fuel
JFROPUS	MMBD	Refinery output of jet fuel

JFROPUSA	MMBD	JFROPUS seasonally adjusted	
JFTCPUS	MMBD	Demand for jet fuel	
JFTCPUSA	MMBD	JFTCPUS seasonally adjusted	
JKESPUS	MMBD	Kerosene jet fuel demand by refiners to end-users	
JKTCUUS	CPG	Price of kerosene based jet fuel	
JKTCUUSA	CPG	JKTCUUS seasonally adjusted	
KQH1PUS	MM	Single family dwelling housing closing stocks	
KQHMPUS	MM	Housing closing stocks	
KRDRXUS	BIL\$	Change in manufacturing inventories	
LF	FRACT	Revenue ton miles/available ton- miles:	(RMZZPUS/RMZTPUS)
LFSA	FRAC	LF seasonal adjusted	
LGEXPUS	MMBD	Exports of LPG's	
LGFPUS	MMBD	Field production of LPG's	
LGIMPUS	MMBD	Gross imports of LPG's	
LGNIPUS	MMBD	Net imports of LPG's	
LGRIPUS	MMBD	Refinery inputs of LPG's	
LGRIPUSA	MMBD	LGRIPUS seasonally adjusted	
LGROPUS	MMBD	Refinery output of LPG's	
LGROPUSA	MMBD	LGROPUS seasonally adjusted	
MBOLPUS	MMBD	Other refinery inputs	
MBTCPUS	MMBD	Reclassified motor gasoline blending components	
MGDAYSP	DAYS	Motor gasoline days of supply	
MGEXPUS	MMBD	Exports of motor gasoline	
MGFPUS	MMBD	Field production of finished motor gasoline	
MGIMPUS	MMBD	Gross imports of motor gasoline	
MGNIPUS	MMBD	Net imports of finished motor gasoline	
MGSPUSA	MMB	MGSPUS seasonally adjusted	
MGROPUS	MMBD	Refinery output of finished motor gasoline	
MGROPUSA	MMBD	MGROPUS seasonally adjusted	
MGTCPUS	MMBD	Demand for finished motor gasoline in MMBD	
MGTCPUSA	MMBD	MGTCPUS seasonally adjusted	
MGTCPUSX	MMBD	Demand for finished motor gasoline on a consistent basi	
MGUCUUS	CPG	Motor gasoline, all grades and all services, retail pri	
MGUCUUSA	CPG	MGUCUUS seasonally adjusted	
MGWHPUS	MMBD	Wholesale volume: motor gasoline	
MGWHUUS	CPG	Wholesale price of motor gasoline	
MGWHUUSA	CPG	MGWHUUS seasonally adjusted	
MITCPUS	MMBD	Miscellaneous petroleum products	
MOGP	CPG	Real seasonalized price of motor gasoline	
MOGPSA	CPG	Real deseasonalized price of motor gasoline	
MPG	INDX	MPG Miles per gallon for all vehicles	
MPGA	MPG	MPG seasonally adjusted	
MPGX	+INF	MPG Miles per gallon for all vehicles on a consistent b	
MVVMPUS	MM	Vehicle miles travelled	
MVVMPUSA	MM	MVVMPUS seasonally adjusted	
NGACPUS	BCFD	Demand for natural gas, pipeline use	
NGCCPUS	BCFD	Demand for natural gas, commercial sector	
NGCCPUSB	BCFD	NGCCPUS 2-month moving average	
NGCCPUSX	FRAC	Ratio of NGCCPUSB/NGCCPUS	
NGCCUUS	DMCF	Price of natural gas, commercial sector	
NGEOPUS	BKWD	Electricity generation by natural gas	
NGEOSHR	FRAC	Share of gas generation to oil and gas generation	
NGEOSHRX	FRAC	Temporary variable for NGEOSHR	
NGEUDUS	DMMB	Cost of natural gas to electric utilities	
NGEUDUSA	DMMB	NGEUDUS seasonally adjusted	
NGEUPUS	BCFD	Demand for natural gas at electric utilities	
NGEUPUSX	BCFD	Temporary variable for NGEUPUS	
NGEXPUS	BCFD	Exports of natural gas	
NGICPUS	BCFD	Natural gas demand, industrial sector	
NGICUUS	DMCF	Price of natural gas, industrial sector	
NGICUUSA	DMCF	NGICUUS seasonally adjusted	
NGIMPUS	BCFD	Total imports of natural gas	
NGIMPUSA	BCFD	NGIMPUS seasonally adjusted	
NGIMPUSX	BCFD	Temporary variable for NGIMPUS	
NGIMPUSZ	BCFD	Temporary variable for NGIMPUSA	
NGINPUS	BCFD	Demand for natural gas, other industrial commercial use	
NGINPUSB	BCFD	NGINPUSA 2-month moving average	
NGINPUSX	BCFD	NGINPUS 2-month moving average	
NGINPUSZ	FRAC	Ratio: NGINPUSB/QSIC (gas wtd. ind. production)	
NGLPPUS	BCFD	Demand for natural gas (lease & plant)	
NGMPPUS	BCFD	Production of wet marketed natural gas	
NGNCPUS	MM	Number of commercial natural gas customers	
NGNCPUSA	MM	NGNCPUS seasonally adjusted	
NGNIPUS	BCFD	Net imports of natural gas	
NGNRUS	MM	Number of residential natural gas customers	

NGNRPUSA	MM	NGNRPUS seasonally adjusted	
NGNWPUS	BCFD	Net withdrawals of natural gas from underground storage	
NGPRPUS	BCFD	Dry natural gas production	
NGPRPUSA	BCFD	NGPRPUS seasonally adjusted	
NGPRPUSX	BCFD	Reseasonalized NGPRPUSA	
NGPRPUSZ	BFCD	Temporary term for NGPRPUSA	
NGRCPLUS	BCFD	Demand for natural gas, residential sector	
NGRCPLUSB	BCFD	NGRCPLUS 2-month moving average	
NGRCPLUSX	BCFD	Temporary term for NGRCPLUSB	
NGRCUUS	DMCF	Residential natural gas price	
NGRCUUSA	DMCF	NGRCUUS seasonally adjusted	
NGSFPUS	BCFD	Supplemental gaseous fuels	
NGSIPUS	BCFD	Injections of natural gas to underground storage	
NGSPUUS	DMMB	Spot natural gas wellhead price	
NGSPUUSA	DMMB	NGSPUUS seasonally adjusted	
NGTCPUS	BCFD	Demand for dry natural gas	
NGTCPUSA	BCFD	NGTCPUS seasonally adjusted	
NGTCPUSX	BCFD	Temporary variable for NGTCPUS	
NGUSPUS	BCF	Closing stocks working natural gas in underground stora	
NGWPUUS	DMCF	Natural gas wellhead price	
NGWPUUSA	DMCF	NGWPUUS seasonally adjusted	
NGWSPUS	BCFD	Withdrawals from natural gas underground storage	
NLPRPUS	MMBD	Natural gas plant liquid production	
NXSCPUS	BCFD	Net withdrawals of natural gas from underground storage	
OHRIPUS	MMBD	Other hydrocarbons and alcohol field production	
ORUTCUS	FRAC	Crude refinery ratio: CODIPUS / ORCAPUS	
ORUTCUSA	FRAC	ORUTCUS seasonally adjusted	
PAEOPUS	BKWD	Electricity generation by petroleum	
PAGLPUS	MMBD	Refinery processing gain	
PANIPUS	MMBD	Net imports of petroleum products	
PARIPUS	MMBD	Total refinery inputs	
PAROBAL	MMBD	Refinery output balancing item	
PAROPUS	MMBD	Total refinery output	
PAROPUSX	MMBD	Temporary variable for PAROPUS	
PASXPUS	MMB	Total petroleum closing stocks_(excluding SPR)	
PATCPUS	MMBD	Total petroleum product demand	
PATCPUSA	MMBD	PATCPUS seasonally adjusted	
PATCPUSX	MMBD	Total petroleum product demand on a consistent basis.	
PCEOPUS	BKWD	Electricity generation by petroleum coke	
PCEUPUS	MMBD	Demand for petroleum coke at electric utilities	
PPEXPUS	MMBD	Exports of pentanes plus	
PPFPUS	MMBD	Field production of pentanes plus	
PPIMPUS	MMBD	Gross imports of pentanes plus	
PPNIPUS	MMBD	Net imports of pentanes plus	
PPPSPUS	MMB	Closing stocks of pentanes plus	
PPRIPUS	MMBD	Refinery inputs of pentanes plus	
PPRIPUSA	MMBD	PPRIPUS seasonally adjusted	
PPTCPUS	MMBD	Demand for pentanes plus	
PRESPUS	MMBD	Retail volumes of propane	
PRIMELG	PCT	12 month period lag of 6-month moving average of	PRIMEUS
PRIMEUS	PCT	Prime Rate	
PRPSPUS	MMB	Closing stocks of propane	
PRTCUS	CPG	Retail price of propane	
PRTCUSUSA	CPG	PRTCUS seasonally adjusted	
PSEXPUS	MMBD	Exports of other refined products	
PSIMPUS	MMBD	Gross imports of "other" petroleum products	
PSNIPUS	MMBD	Net imports of "other" petroleum products	
PSRIPUS	MMBD	Refinery inputs of "other" petroleum products	
PSROPUS	MMBD	Refinery output of "other" petroleum products	
PSROPUSA	MMBD	PSROPUS seasonally adjusted	
PSTCPUS	MMBD	Demand for "other" petroleum products	
PSTCPUSA	MMBD	PSTCPUS seasonally adjusted	
QSIC	INDX	Natural gas-weighted industrial production index	
RACPPUS	MMBD	Refiner volume of crude oil RACPPUS = CODIPUS	
RACPUUSA	DPB	RACPUUS seasonally adjusted	
RAIMPUS	MMBD	Refiner volume of imported crude oil	
RAIMUUS	DPB	Imported crude oil refiner acquisition cost	
RAIMUUSA	DPB	RAIMUUS seasonally adjusted	
RFEOPUS	BKWD	Electricity generation by residual fuel oil	
RFEPUS	MMBD	Shipments of residual fuel oil to electric utilities	
RFESPUS	MMBD	Residual fuel demand by refiners to end-users	
RFEUDUS	DMMB	Cost of residual fuel oil to electric utilities	
RFEUDUSA	DMMB	RFEUDUS seasonally adjusted	
RFEUPUS	MMBD	Demand for residual oil to produce electricity	
RFEXPUS	MMBD	Exports of residual fuel oil	

RFIMPUS	MMBD	Gross imports of residual fuel oil
RFNIPUS	MMBD	Net imports of residual fuel oil
RFNUPUS	MMBD	Non-utility demand for residual fuel oil
RFSPUSA	MMB	RFSPUS seasonally adjusted
RFROPUS	MMBD	Refinery output of residual fuel oil
RFROPUSA	MMBD	RFROPUS seasonally adjusted
RFTCPUS	MMBD	Demand for residual fuel oil
RFTCPUSA	MMBD	RFTCPUS seasonally adjusted
RFTCUUS	CPG	No.6 residual fuel oil retail price
RFTCUUSA	CPG	RFTCUUS seasonally adjusted
RMZTPUS	MTMD	Available ton-miles
RMZTPUSA	MTMD	RMZTPUS seasonally adjusted
RMZZPUS	MTMD	Aircraft traffic
RMZZPUSA	MTMD	RMZZPUS seasonally adjusted
RSELPUS	MMTD	Raw steel production - electric arc
RSPRPUS	MMTD	Raw steel production - total
RSPRPUSA	MMTD	RSPRPUS seasonally adjusted
TDLOFUSB	FRAC	TDLOPUS/ESTCPUS
TDLOPUS	BKWD	Transmission and distribution losses
TDLOPUSB	BKWD	TDLOPUS 2-month moving average
TDLOPXX	BKWD	Losses and Unaccounted for - Including Nonutilities
TSEOPUS	BKWD	Total Generation - Including Nonutilities
UONIPUS	MMBD	Net_Imports of unfinished oils
UORIPUS	MMBD	Refinery inputs of unfinished oils
UORIPUSA	MMBD	UORIPUS seasonally adjusted
UOTCPUS	MMBD	Reclassified unfinished oils
WNEOPUS	BKWD	Electricity generation by wind, solar and other
WP57IUS	INDX	Producer price index, petroleum products
WPCPIUS	INDX	Producer price index 1984 = 1.00
WPIINUS	INDX	Producer price index, less energy and food
WWEOPUS	BKWD	Electricity generation by wood and waste
XGONG	BKWD	Oil and natural gas generation at electric utilities
XTCLEL	MMT	Shipments of coal to electric utilities
XTDSEL	MMB	Shipments of distillate fuel to electric utilities
XTRSEL	MMB	Shipments of residual fuel to electric utilities
YD87OUS	BIL\$	Real disposable personal income, billion 1987 dollars
ZO20IUS	INDX	Industrial production index: food
ZO26IUS	INDX	Industrial production index: paper
ZO28IUS	INDX	Industrial production index: chem
ZO29IUS	INDX	Industrial production index: petroleum refineries
ZO32IUS	INDX	Industrial production index: stone, clay and glass
ZO33IUS	INDX	Industrial production index: total
ZOCBIUS	INDX	Industrial production index: basic chemicals
ZOISIUS	INDX	Industrial production index: iron and steel
ZOMNIUS	INDX	Industrial production index: manufacturing
ZOSIUS	INDX	Coal weighted production index
ZOTOIUS	INDX	Industrial production index: total
ZWHDDNO	HDD	Northern (NE & MA) deviations from normal
ZWHDDUS	HDD	Deviations from normal HDD, U.S.
ZWHDPNO	HDD	Northeast (NE & MA) HDDs
ZWHNPNO	HDD	Northeast (NE & MA) normal HDDs